

EXHIBIT 1



CASE NAME: BRYSON
CASE NO. 22-541

REPORT DATE: OCTOBER 16, 2023

Report prepared for: Tedra Cannella

Report by:

Paul Lewis, Jr.

I. Introduction:

I am a Biomedical Engineer who provides expertise in the areas of biomechanics, occupant kinematics, crash dynamics, and injury causation. Biomechanics is the study and effect of motion and forces on the human body. Kinematics is the study of motion as applied to occupant kinematics it is the study of the body's motion. Dynamics is the study of forces on the human body that result in that motion and failure of the body due to the forces. These areas are related to medicine but are separate disciplines. The role of a medical doctor is to diagnose an injury and treat it. The role of biomedical/biomechanical engineer is to identify the injury and consider the forces and motions necessary to cause the injury due to his/her specialized knowledge in injury mechanisms and tolerance values. My qualifications are set forth in detail in my Curriculum Vitae provided with this report.

This case involves an incident that occurred on March 15, 2020 in Blue Ridge, Georgia. Santana Bryson, a 23-year-old female, was the driver of a 2008 Ford Escape ("Escape"). The two other passengers in the Ford were Joshua Bryson, a 24-year-old male was in the right front (#3) seat and Cohen Bryson ("Cohen"), a 2-year-old male, was seated in the left rear outboard seat (#4) in a forward-facing car seat. The police report documented Cohen's child seat was installed properly and the shoulder and lap belt that secured the child seat to the vehicle was locked properly.

The other vehicle involved in the incident was a 2016 Ford Super Duty 2500 pickup truck ("Ford truck"). The Ford truck was equipped with a Rough Country lift kit that raised the vehicle approximately six (6) inches above the factory recommendation. All references in this report to the Ford truck are intended to mean the subject Ford truck with the Rough Country lift kit.

Per the police report narrative, the Escape was stopped in the left westbound lane of GA 2 when it was impacted in the rear by the front of the Ford truck.

Mr. and Mrs. Bryson survived the incident without life-threatening or permanently disabling injuries. Unfortunately, 2-year-old Cohen sustained fatal injuries as a result of the incident.

II. Statement of the issues to be addressed:

This case has been evaluated by engineers with expertise in reconstruction and vehicle structure design who determined the amount of damage/crush sustained to the Escape's vehicle structures was significantly enhanced (greater) due to the Ford pickup truck being lifted above the factory recommendation.

I have reviewed this case in order to determine if Cohen's fatal injuries would have been significantly mitigated and/or prevented had the Ford truck not been lifted to a height above the factory recommendation, lessening the amount of structural damage and intrusion, preserving Cohen's occupant survival space.

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III. Database:

I have reviewed the following case specific information:

1. FANNIN COUNTY ACCIDENT REPORT
2. FANNIN REG HOSPITAL -COHEN'S MEDICAL RECORDS FOR COHEN
3. PHOTOS
 - a. SCENE & BRYSON VEHICLE (134)
 - b. STRIKING VEHICLE PHOTOS BY AB (76)
 - c. BRYSON VEHICLE BY ABC (86)
 - d. F250 TAKEN BY ABC (25)
 - e. PHOTOS TAKEN AT DEALERSHIP INSPECTION (8)
 - f. AUTOPSY PHOTOS (11)
4. SPECIALIZED COLLISION RECONSTRUCTION TEAM FILES
5. PLAINTIFF'S COMPLIANT
6. CDR
7. FORD F250 INFOTAINMENT DOWNLOAD
8. FORD SUPER DUTY F250 – CARFAX
9. GSP NIBRS INCIDENT REPORT
10. DIVISION OF FORENSIC SCIENCE REPORT COHEN BRYSON
11. FANNIN COUNTY EMERGENCY MEDICAL SERVICES
12. ERLANGER HEALTH SYSTEM MEDICAL RECORDS FOR JOSHUA BRYSON
13. FANNIN REG HOSPITAL – MED & BILLING RECORDS FOR JOSHUA
14. FANNIN REGIONAL HOSPITAL RECORDS – SANTANA
15. SANTANA-FANNIN REGIONAL HOSPITAL RECORD -HEIGHT AND WEIGHT 3/16/20
16. SANTANA-FANNIN REGIONAL HOSPITAL RECORD – WEIGHT 3/16/20
17. SANTANA-NW GA MEDICAL CLINIC-HEIGHT AND WEIGHT 3/5/20
18. VEONEER RCM DOWNLOAD RESULTS – L196 FIELD REPORT
19. 2008 FORD ESCAPE OWNERS MANUAL
20. 2008 FORD ESCAPE CAR FAX REPORT
21. 2016 FORD SUPER DUTY F250 – CARFAX REPORT
22. AUTOPSY PHOTOS – GBI
23. OWNERS MANUAL FOR 2016 SUPER DUTY
24. DEPOSITION OF JOSHUA BRYSON TAKEN 4/12/23 W/ EXHIBITS
25. DEPOSITION OF RAD HUNSEY TAKEN 8/4/23 W/ EXHIBITS
26. DEPOSITION OF SANTANA BRYSON TAKEN 4/12/23 W/ EXHIBITS
27. DEPOSITION OF TROOPER ANDREW PHILLIPS TAKEN 4/26/23 W/ EXHIBITS
28. AUTOPSY REPORT FOR COHEN BRYSON
29. MEDICAL RECORDS
 - a. ERLANGER RECORDS FOR SANTANA
 - b. FANNIN COUNTY EMS REPORT FOR JOSHUA
 - c. FANNIN COUNTY EMS REPORT FOR SANTANA
 - d. FANNIN COUNTY REGIONAL HOSPITAL RECORDS FOR JOSHUA
 - e. MEDICAL TRANS RECORDS FOR SANTANA

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- f. UNIVERSITY SURGICAL ASSOCIATES RECORDS FOR JOSHUA
30. WRITTEN DISCOVERY
 31. RC PRODUCTION BATES 1-152 6/30/22
 32. RC PRODUCTION BATES 153-208 6/30/22
 33. RC PRODUCTION RE INITIAL DISCOVERY BATES 209-416 9/26/22
 34. RC PRODUCTION BATES 417-467 BACHO AND SALES NUMBERS 2/21/23
 35. RC SUPPLEMENTAL PRODUCTION BATES 472-4721 TLC NOTE ALL BACHO DOCS 2/22/23
 36. RC PRODUCTION BATES 4722-5344 3/1/23
 37. RC ESI PRODUCTION BATES 5345-5348 3/2/23
 38. RC PRODUCTION BATES 5349-5417 3/21/23
 39. RC PRODUCTION BATES 5418-5461 3/31/23
 40. RC PRODUCTION BATES 5461-6698 4/21/23
 41. RC PRODUCTION BATES 6702-8203 5/23/23
 42. RC PRODUCTION BATES 8204-8273 7/13/23
 43. RC PRODUCTION BATES 8274-8308
 44. 3D VISUALS
 45. GBI PHOTOS
 46. REPORT OF QUEST ENGINEERING

I inspected the subject Escape, Cohen's car seat, and the striking Ford pickup truck on September 12, 2022. I performed a surrogate/exemplar study on September 29, 2023.

IV. Injury information for Cohen:

Following are excerpts for Cohen from any medical information for treatment he received following the incident. The information is as listed in the records. There are no opinions contained herein.

1. Fannin County EMS report:

Date of Service: 3/15/2020 @ 23:15:30

Patient: Cohan Bryson, a white male, 2-years-old; DOB: 2/15/18.

Incident/Scene:

Location: Blue Ridge Drive, Blue Ridge, GA.

Destination: Fannin Regional Hospital, Blue Ridge, GA.

Call times:

Dispatch notified: 23:15:31

Unit enroute: 23:18:34

Arrived at scene: 23:21:35

Arrived at patient: 23:22:00

Left scene: 23:34:01

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Arrived at destination: 23:39:02
Patient est. body weight: 13.6 kg

Chief Complaint: Cardiac arrest, resuscitation in progress.

Vitals:

11:23:01 – PKG: PEA; BP: Not present; Pulse: 0; Resp rate: 12; GCS: 3.

11:39:01 – PKG: PEA; BP: Not present; Pulse: 0; Resp rate: 12; GCS: 3.

Narrative:

Chief Complaint: Cardiac arrest.

LOC: Unresponsive.

Airway: Initial blood in airway. Suction done to clear airway. Tried to visualize chords for intubation times 2 with no attempt made to pass tube. OPA inserted to maintain airway with padding placed under shoulders to assist with in-line airway path.

Breathing: Assisted with child BMV with good chest rise and fall.

Circulation: Pulseless with no heartbeat heard on auscultation during periodical checking during care.

Cardiac Monitor: PEA once placed on monitor.

Exam findings: Pupils were dilated with left slightly bigger, trachea midline, no JVD, Halo test revealed cerebral spinal fluid present in the blood coming from the right ear. No other obvious trauma noted with rapid trauma assessment.

Differential: Cardiac arrest.

Details: Upon arrival found law enforcement and first responders working CPR on patient in middle of intersection. Was extricated prior to our arrival. Pediatric backboard used to secure patient to it and then taken to med 3 for transport. Upon loading patient CPR continued and ACLS protocols initiated. Placed on cardiac monitor with vitals as listed in report above. Patient IO access obtained using aseptic technique and secured in place with coban. Assessed patient during CPR. First rhythm check revealed a PEA rhythm and was given .1 mg of epi 1:10000 at this time. First look into airway revealed blood so suction was used using hard suction catheter to clear blood from airway with success. After momentary hyperventilation of patient attempted to visualize chords was done with no success and opted to place OPA of correct size in and continue with Assisted ventilations via BVM with 100% Oxygen 15 LPM. Next round of epi .1 mg 1:10000 was given with a PEA rhythm still showing. At this point continued CPR and administered atropine .1 mg with no change to rhythm from the PEA. We have now arrived at FRH ED.

Hospital: Upon arrival at ED CPR was continued all the way from med 3 with crew on stretcher with patient into room where patient care and report were given to staff on scene. No insult or injury caused the patient during our care.

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2. Fannin Regional Hospital:

Pg. 11 – Date: 3/19/20 @ 1:01:

Admitting diagnosis: Unspecified injury of head.

Pg. 14 – DISCHARGE STATUS, 3/16/20:

Principal Diagnosis: Contusion of unspecified part of head.

Secondary Diagnoses:

Cardiac arrest due to other underlying condition

Coma scale, best motor response, none, at ARR.

Coma scale, eyes open, never, at arrival to ER.

Coma scale, best verbal response, Non, at AR.

Car occupant injured in unspecified street and highway as the place.

Procedures: Insert emergency airway.

Pg. 16 – ED Physician Document, 3/15/20 @ 23:49: HPI: 3/16 @ 1:31 – This 2-year-old white male presents to ED via EMS – Ground with complaints of MVC full trauma arrest. The patient presents to the emergency department after being involved in an MVC, in which he was a rear-seat passenger, was restrained, in a car seat, the vehicle was impacted on the rear end, the force of impact was severe. Secondary impact was to there was no secondary impact, the vehicle was traveling approximately 60 mph, the patient required extrication from the vehicle, the vehicle did not roll over. Injuries: The patient suffered an injury to the head, back of left arm. The EMS care provided IV fluids, supplemental oxygen, IO left leg. Pt involved in MVC arrived full cardiac arrest. Restrained back seat passenger rear ended high speed with 2 feet encroachment into vehicle. Entrapped/extricated. Upon EMS arrival, full cardiac arrest. Unresponsive. Pupils dilated. BMV on arrival.

ROS:

1:36 - MS/Extremity: Positive for injury or acute deformity, swelling, of the dorsal aspect of right forearm and right forearm.

Neuro: Positive for altered mental status, loss of consciousness, unresponsive. Pupils fixed and dilated full cardiopulmonary arrest.

Exam:

1:39 – Head/face: Noted is deformity, ecchymosis, swelling, that is moderate, crepitus with palpation of skull.

Eyes: Pupils dilated and are fixed.

ENT: Ear canals – bloody discharge, that is moderate in the right canal.

Respiratory: Respiratory arrest. BVM upon arrival with good chest rise. Intubated by MD shortly after arrival.

Cardiovascular: No heart tones. No pulse.

Musculoskeletal/extremity: Extremities noted in the right arm, deformity.

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Neuro: Unresponsive.

Pg. 17 – Procedures:
3/16 @ 1:49: Intubated. Ambu bag. Placement verified.

Pg. 18 – Disposition:
3/16/20 @ 01:53: Patient expired.
Time of death: 23:57 on 3/15/20.

Diagnosis:

1. Cardiac arrest due to other underlying condition.
2. Unspecified injury of head.

3. Coroner report:

Kevin Dills, Deputy Coroner:

Received call from Fannin 911 Dispatch at 0014 for a death from an accident at Fannin Regional Hospital. Arrived at Fannin Regional ER to find 2 y/o male deceased in trauma 2.

ER Nurse reported patient was brought in by Fannin EMS in traumatic arrest from a high-speed rear end collision. Decedent was restrained in a car seat in back seat. Car seat was not at hospital to visualize. Pronounced at 2357.

I observed a 2 y/o white male deceased in Trauma 2. Decedent was supine on backboard with all resuscitation equipment still in place. Only signs of outward trauma was marked discoloration to right ear and the skull just behind right ear. Blood was seen trickling from that ear as well. The right orbit was swollen and bruised as well. No other outward trauma noted. Livor mortis was present in the upper and lower extremities.

4. Autopsy report:

External Examination:

The body is of an 87 cm, 28 pound, white-skinned baby boy whose appearance is consistent with the given age of 2 years. The scalp hair is fine, light brown-blond, and up to approximately 2 inches.

Evidence of Injury:

There are blunt impact injuries of the head and extremities. These will be described by body region; no sequence is implied.

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Blunt impact of head and neck:

There is contusion and edema of the lateral aspect of the right upper eyelid. The helix of the right ear is contused both anteriorly and posteriorly with abrasion on the triangular fossa, posterior rim of the helix, and on the scalp just posterior to the right ear. Blood emanates from the right external auditory canal. There is hemorrhage in the subscapular soft tissues of the right temporal region as well as within the right temporalis muscle. There is a depressed underlying fracture of the right sphenoid bone with a linear extension along the right petrous ridge. There is atlanto-occipital disarticulation with laceration at the pontomedullary junction. A slight amount of subarachnoid hemorrhage is at the base of the brain and a moderate amount of hemorrhage tracks down through the soft tissues just anterior to the cervical spine. The cerebral gyri are flattened, and the sulci are narrowed.

Blunt Impact of Extremities:

Blue-pink contusion is over a 1 ½ x 1 ½ inch in maximal dimension area on the anterior right thigh. This contusion has a slight diagonal angulation from up right to down left. A ½ x ¼ inch blue-pink contusion is on the antero-medial aspect of the left thigh. Few small, scattered contusions are on the thighs, knees, and legs. There is palpable and radiographically evident fracture of the mid-left femur. Radiographic images also show fractures of the left radius and ulna as well as white discoloration of the left side of the chest with the heart pushed from left to right. Inspection and palpation of the internal organs of the torso fail to reveal any obvious natural disease or traumatic injury.

SUMMARY OF FINDINGS:

1. Blunt impact of head and neck, with:
 - a. Abrasions and contusions.
 - b. Skull fractures.
 - c. Atlanto-occipital disarticulation.
 - d. Laceration of pontomedullary junction.
 - e. Subarachnoid hemorrhage.
 - f. Moderate hemorrhage, anterior to cervical spine.
2. Blunt impact of extremities, with:
 - a. Contusions.
 - b. Fractures of left radius, ulna and femur.

CAUSE OF DEATH: Blunt impact injury of with atlanto-occipital disarticulation.

MANNER OF DEATH: Accident, passenger in motor vehicle collision.

OPINION:

This 2-year-old boy, Cohan Bryson, died of blunt impact injuries to his head which he sustained as a passenger in a motor vehicle collision. The most significant injury was an impact to the right side of his head which resulted in a skull fracture and disarticulation at the atlanto-occipital

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junction. This resulted in a laceration of the underlying brainstem. The manner of death in this situation is accident.

V. Reconstruction information from report of Quest Engineering:

This report includes:

The rear seat of the Escape had been displaced forward significantly. To measure the change in forward distance that the seat had been displaced, the roofs of the subject Escape and exemplar scans were cropped, revealing the interior of the vehicles. Because the rear seat was moved forward, the child seat also moved forward. The exemplar car seat was scanned in the exemplar Escape. Therefore, it was visible in the cropped scan. The accident car seat no longer fit in the subject Escape.

A CAD comparison of the post-crash vehicle crush geometries to the deepest penetration match points revealed over ½ foot of dynamic rebound occurred.

Opinions and conclusions include:

- The F250 was effectively lifted over 6 inches.
- In the subject accident the F250 bumper penetrated to beyond the original location of the child seat pushing the child's seat headrest area (Safety 1st logo) forward by over 18 inches to a post-crash location of 1.1 feet from the rear of the driver's static seatback location.
- Dynamic analysis and damage matching reveal that during the crash of the F250 bumper penetrated 4.36 feet into the rear hatch trunk and rear seat position areas, pushing the child seat's head rest area (Safety 1st logo) forward over 2 feet to a during-crash location only about 6 inches from the driver's static seat back location (top of the seat).
- Had the lift kit not been installed, the stock F250 would have interacted more directly with the stronger structural components of the Escape rear as opposed to the Escape hatch and pillars.
- Had the stock F250 impacted the rear of the Escape at 51 mph and contacted the Escape's bumper and related structural components more directly, reasonably the crush on the rear of the Escape would have been dramatically reduced by over 2 feet.
- The damage on the Escape matches the F250 damage and features.
- Holes on the F250's hood were created by the hinges on the Escape's hatch that hold the rear windshield in place.
- The F250 bumper overrode the rear bumper of the Escape, directly contacting the rear hatch.
- Had the F250 not been lifted, a more flush contact between the bumpers would have caused the override.
- The Escape bumper level support structures were largely intact following the crash, some of which had been displaced vertically downward, reducing their effectiveness.
- The F250's speed at impact was near 51 mph with a 17.93 mph DV.
- The Escapes speed at impact was near 0 mph with a 40 mph DV.

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- The F250 felt a maximum of 10.4 g's.
- The Escape felt a maximum of near 23.6 g's.
- The left rear occupant position had approximately 1.5 feet of forward static shift and the dynamic shift of the head rest area of the child's seat was approximately 2 feet.
- The front bumper of the F250 penetrated all the way into the left rear seat area such that during the collision the truck's grill Ford logo was literally positioned over the child's seats original headrest location area.
- Because of the Escape's rear hatch, cargo, and rear seat back necessarily had to remain in front of the child's seat was pushed forward from its original position.
- Front row Escape occupant positions felt similar accelerations as the vehicle as a whole, however, the rear child seat felt multiple times higher accelerations due to its location in the vehicle crush zone.
- The simulation results indicate that a stock F250 impact would have resulted in near 45 g's acceleration to the Escape.
- Calculations and simulations of the accident with the F250 at factory height produced collisions that reduced the Escape's crush and resulted in damage which would not have penetrated to the rear seat such that the rear occupant compartment would not have been compromised.

This report includes the following diagrams:

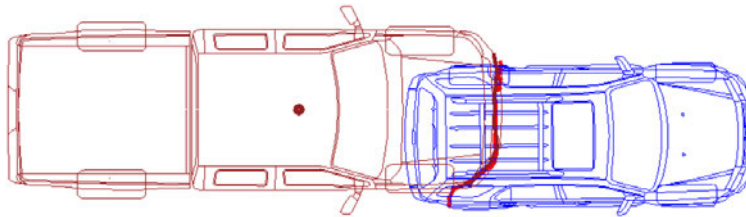


Figure 3: Crush Damage Matching (Static)

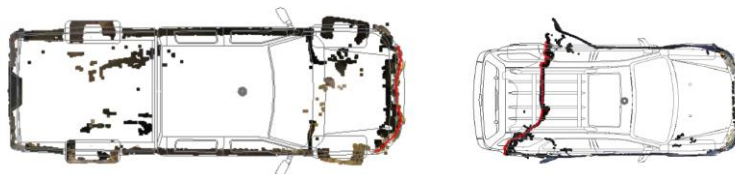


Figure 4: Crush lines from scan cross section

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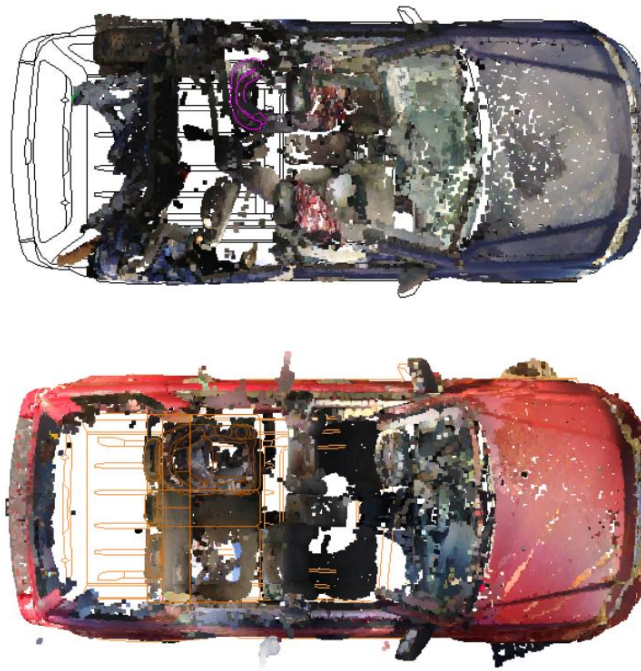


Figure 5: Rear seat and child seat change in position

VI. Analysis, Opinions, and Support:

****Warning: This section contains graphic images.***

- 1. Cohen's fatal injuries would have been prevented had the Ford truck not been lifted to a height above the factory recommendation, which would lessen the amount of structural damage and intrusion, preserving his occupant survival space.**
 - 1.1 The fatal injuries documented in Cohen's autopsy report are severe blunt force injuries to his head and upper neck including but are not limited to the following: skull fractures, an atlanto-occipital disarticulation ("AO", an internal decapitation/forced separation of his skull and brain from his cervical spine), laceration of the pontomedullary junction, and subarachnoid hemorrhage.
 - 1.2 Cohen also sustained trauma to his extremities to include fractures of the left radius, ulna, and femur.
 - 1.3 Cohen's head injuries are all to the front and right side of his head, and the injuries all clearly correlate to one another. The following images from his autopsy report and demonstrate this:
 - 1.3.1 The following image of Cohen's head shows that he has a contusion and swelling to his right eye, consistent with an impact to this area of his face.

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- 1.3.2 The following images show: 1) bruising to Cohen's right ear and scalp adjacent to his ear consistent with an impact to this area of his head, 2) blood emanating from his right ear canal which is consistent with a basilar skull fracture(s) which requires an impact to the head to create, 3) areas of blood underneath and corresponding to the area of impact to his right ear and scalp, and 4) the skull fractures to the areas of the base of his skull that resulted from the blunt force impact to the right side of his head in the area of the injuries to his ear and blood underneath his scalp.

(Blank space intentional to allow for larger images on the following page.)

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- 1.3.3 The following images generally demonstrate the areas of trauma associated with the AO Cohen sustained to his upper cervical spine, base of his skull, and his brain.

(Blank space intentional to allow for larger images on the following page.)

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- 1.4 Cohen's fatal head trauma documented in his autopsy report could not have occurred in the absence of a forceful impact to the right front/side of his head in the area clearly demarcated by his injuries.
- 1.5 There is the outdated and disproven theory of the "Shaken Baby Syndrome" that infants can sustain fatal head injuries inertially, i.e., fatal brain injuries sustained without an impact. In this hypothetical situation, the injury profile to the infants is isolated to brain injuries only without any cervical fractures.
- 1.6 With certainty, Cohen could not have sustained his spectrum of head injuries from simply inertia due to crash forces. His head clearly sustained a forceful impact evidenced by the external bruising and abrasions that was severe enough to not only cause multiple skull fractures, but also decapitate his upper cervical spine from his brain/skull.
- 1.7 Cohen also sustained left-sided extremity trauma documented by his post-mortem x-ray as shown below, a fracture to his left femur, ulna, and radius. Though not fatal injuries, these are also injuries that require an impact(s) or crush to create.

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- 1.8 The crash forces in this accident were to the rear of the vehicle, yet the injuries Cohen sustained were to the front and sides of his head and body, inconsistent with the directionality of the crash forces. When the Escape was impacted by the Ford truck, the vehicle was accelerated out from under his body in his car seat and his head and body moved rearward into his padded car seat and protective wings around his head. At this point, there is no force or mechanism to create the impact to the front right of Cohen's head and extremities.
- 1.9 As documented in detail in the accident reconstruction report and supported by the extensive measurements and its demonstrative diagrams, the extent of rear vehicle structures into Cohen's seated position created a catastrophic loss of occupant survival space for him.
- 1.10 The image on the following page on top is a photograph taken at the scene of the accident with Cohen's car seat still in the vehicle. The back of the driver's seatback is outlined in yellow for visual aid and so is the padding on the side of the car seat. The image on the bottom is from my surrogate/exemplar inspection. The car seat used in the study is the same make/model as Cohen's car seat and the exemplar vehicle's driver's seat was adjusted to the position, I documented it to be in at my vehicle examination.

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- 1.11 These images are included to generally visually demonstrate the loss of space that that occurred at Cohen's position. The loss of space shown in the scene photograph is in the static condition. The generally accepted principle is that dynamically, as the crash and subsequent movements of vehicle structures is occurring, the movement of the structures could be as much as 20% greater than demonstrated in the static condition, i.e., during the crash the distance between Cohen's car seat and the back of the driver's seatback could have been up to 20% less than shown in this image.

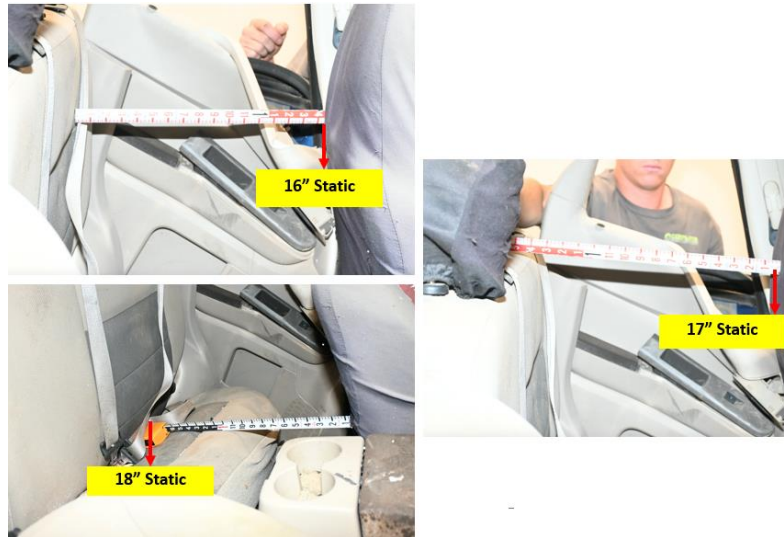


- 1.12 I measured Cohen's child seat at my inspection of the subject Escape. The following images from the inspection show generally the distance of the front to the back of the child seat and the depth of the seat portion of it.



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- 1.13 The following images were taken at my vehicle exam and generally show the distances from the #4 seat where Cohen was seated to the back of the driver's seatback. These general measurements demonstrate that the amount of dynamic occupant space would have been less than the front to back width of Cohen's car seat.



- 1.14 As stated above, when the rear impact occurred, Cohen's head and body moved rearward into the padded structures of his child seat. At this same time, as described in the reconstruction provided in this report, the rear structures of the Escape were being driven forward to the extent that they pushed Cohen's seat forward until the right side of his head forcefully impacted the driver's seat structures, creating the spectrum of external injuries with corresponding skull fractures and causing the AO injury.
- 1.15 Impact with the driver's seatback structures created the fracture to his left side femur, ulna, and radius.
- 1.16 My surrogate study with an infant approximately the same size as Cohen and the front seat structures in the exemplar vehicle adjusted to the "as found" position at my vehicle exam showed the significant clearance between Cohen's head and the rear of the driver's seat pre-impact.



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- 1.17 In order for Cohen to receive the fatal injuries documented in his autopsy report, the significant pre-impact head clearance he had had to be reduced dramatically to something on the order of what is shown in the below image taken at my surrogate/exemplar study. This image is not intended to represent an exact measurement or distance Cohen's head was from the front seat structures during the accident. It is intended to show generally his head would have to be in very close proximity to the front seat structures in order to impact them and create his head injuries. However, as part of my surrogate/exemplar exam, a police photograph showing the post-crash condition of Cohen's car seat, driver's seat, and landmarks in the vehicle interior was utilized to approximate the car seat to a position visually consistent with that shown in the police photograph.



- 1.18 I have considered whether in this specific set of rear impact circumstances there was any other possible source of injury for the front and side of Cohen's head and there is not. As discussed above, there is no possibility of Cohen's injuries being created by inertia and crash forces alone. Police photographs and my inspection of the subject Escape revealed that the driver's front seatback did not experience any excessive rearward deflection into Cohen's occupant survival space that could have been injurious to him. Further, the seatback was inhibited from any excessive rearward deflection because it was being held up by Cohen and his car seat that had been pushed into the back of it.
- 1.19 My surrogate/exemplar study demonstrated that even with the driver's seatback reclined all the way rear, there was a significant distance between the seatback and the infant's head. This supports there would have been no contact between Cohen's head and the seatback had the front seat experienced some rearward deflection but the #4 rear seat he was seated in was not pushed forward by the intrusion. Reference the photograph on the following page demonstrating this.

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- 1.20 The reconstruction provides that had the Ford truck not been lifted and instead been the factory-intended height, Cohen's occupant survival space would have been preserved but the G forces involved in this incident would have been increased. I have considered whether the increase in G forces would have been injurious to Cohen, and it is more probable than not that they would not have been.
- 1.21 Had the Ford truck not been lifted, it would have engaged the rear structures of the Escape such as the bumper that attenuate and distribute the crash forces. This would have afforded Cohen the benefit of having his child seat, the #4 seatback and structures, and the structures behind his seatback to aid in absorbing and distributing the crash forces instead of rendering them unable to do so due to the severe intrusion caused by the lifted Ford pickup truck.
- 1.22 The increased G force value provided by the reconstruction is a "peak" G value, i.e., the highest value that the G's reached during the accident sequence. The peak G forces only act on the vehicle structures and occupants' bodies for a very brief time. The average G's are always significantly less than the peak G's.
- 1.23 The reconstruction has provided the worst-case scenario which of 45 G's, which is significantly lower than the FMVSS 208 that head acceleration levels should not exceed 70 G. ("Frontal Offset Crashworthiness Evaluation, Guidelines for Rating Injury Measures, 2009, Insurance Institute for Highway Safety).
- 1.24 Cohen's injuries were not caused by G forces alone, they required his body to impact the front seat structures. Had his occupant survival space been preserved, this would have eliminated the impact of his body with the front seat structures thereby preventing his fatal injuries. Had Cohen's survival space been preserved via the Ford truck being a stock height and not one above the factory recommendation, he would have been expected to survive this incident with non-life threatening and non-permanently disabling injuries.

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The above opinions are based on the currently available information as well as my background, education, training, and experience as a biomedical engineer and forensic investigator. I reserve the right to supplement my opinions as discovery is ongoing.

VII. Qualifications and Methodology:

I am a Biomedical Engineer who provides expertise in biomedical/biomechanical engineering related to injury causation and prevention and occupant kinematics. My educational background consists of a Master of Science in Biomedical Engineering from the University of Alabama Birmingham received in 1995 and a Bachelor of Science Industrial Engineering from the University of Alabama received in 1991.

From September 1996 through September 1998, I was an intern at the Office of the Medical Examiner in Metropolitan, Atlanta, Georgia. In September 1998 I began working for Burton & Associates, a consulting firm, which is now located in Alpharetta, Georgia. In 2011 I formed my own company, Bioforensic Consulting, Inc. providing consulting in the areas of biomedical and biomechanical engineering, occupant kinematics, and injury causation in a wide range of accident scenarios including transportation crashes.

As a Forensic Investigator and Primary Biomechanical Engineering Consultant I have assisted with on scene and follow up investigation of traffic fatalities, homicides, suicides and natural deaths. I have also assisted in postmortem examinations, autopsies and exhumations of victims to determine cause and manner of injuries and death.

As of 2023 I have been involved in the investigation of approximately 4,900 plus incidents with fatality or significant injury including automobile crashes, plane crashes, falls and other bodily traumatic events. Further, I have been involved in numerous forms of testing simulating automobile accidents with and without dummies, and I have co-authored several papers pertaining to such. A list of these, as well as further details of my background and training, is contained in my attached Curriculum Vitae.

In my evaluation of the cases I review and of this specific case, I utilized the Scientific Method of Analysis in order to answer the questions that you have posed. The Scientific Method requires the following: 1) A statement of the problem, 2) An orderly review and course of study involving the collection of facts, data and information concerning the problem to be addressed, 3) The formation of an opinion or hypothesis based on the evaluation of the above, 4) Testing the validity of the hypothesis. Such testing may take numerous and varied approaches and does not necessarily require some physical or mechanical test procedure, and 5) Consideration for the potential for error in the conclusions and opinions stated.

These principles are applied to my case investigation leading to the arrival of my conclusions in the following report specific to this case.

My deposition and trial fees are \$500/hour.